# ⊛EPA

United States Environmental Protection Agency
Washington, DC 20460

## Work Assignment

| Work Assignment Number |
|---|
| 2-1 |
| [X] Original  [ ] Amendment    Number: |

| Contract Number | Contract Period | Title of Work Assignment |
|---|---|---|
| EP-W-08-019 | Base            Option Period Number II | Emissions Data Integration |

| Contractor | Specify Section and Paragraph of Contract SOW |
|---|---|
| RESEARCH TRIANGLE INSTITUTE | |

| Purpose: | [X] Work Assignment Initiation    [] Work Assignment Close-Out | Periods of Performance |
|---|---|---|
| | [] Work Assignment Amendment  [] Incremental Funding | From:03/11/10      To:03/10/11 |
| | [] Work Plan Approval | |

Comments:
The contractor shall prepare and deliver a work plan and cost estimate in accordance with the Statement of Work.

## Accounting and Appropriations Data

[] Superfund                                                                 [X] Non-Superfund

| Line | DC (Max 6) | Budget/FYs (Max 4) | Appropriation Code (Max 6) | Budget Org/Code (Max 7) | Program Element (Max 9) | Object Class | Amount (Dollars) | (Cents) | Site/Project (Max 8) | Cost Org/Code (Max 7) |
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## Authorized Work Assignment Ceiling

| Contract Period: Previously Approved | Cost/Fee | LOE |
|---|---|---|
| This Action | | |
| Total | $0.00 | 1,030 |

## Work Plan / Cost Estimate Approvals

| Contractor WP Dated : | Cost/Fee: | LOE: |
|---|---|---|
| Cumulative Approved: | Cost/Fee:$0.00 | LOE:1,030 |

| Work Assignment Manager Name | Branch/Mail Code |
|---|---|
| PETER KOKOPELI | Phone Number |
| | Fax Number |
| (Signature)          (Date) | |

| Project Officer Name | Branch/Mail Code |
|---|---|
| RYAN T. DANIELS | Phone Number |
| | Fax Number |
| (Signature)          (Date) | |

| Other Agency Official Name | Branch/Mail Code 3803R |
|---|---|
| DEBRA A. MILLER | Phone Number 202-564-1041 |
| | Fax Number |
| (Signature)          (Date) | |

| Contracting Official Name | Branch/Mail Code 3803R |
|---|---|
| DEBRA A. MILLER | Phone Number 202-564-1041 |
| | Fax Number |
| (Signature)          (Date) | |

| Contractor Acknowledgement of Receipt and Approval of Workplan (Signature and Title) | Date |
|---|---|

# Emissions Data Integration
Contract: EP-W-08-019, Work Assignment: 2-1

## Summary Information

Title:                          Emissions Data Integration
Period of Performance:   From: 03/11/10
                         To:   03/10/11
Award Date:
Total Funding:

## Procurement Management Roles

WORK ASSIGNMENT MANAGER:

  U.S. E.P.A.
  Attn: PETER KOKOPELI
  1200 PENNSYLVANIA AVE, NW
  WASHINGTON, DC    20460

  Mail Code:
  Phone Number:
  Fax Number:
  E-Mail Address: kokopeli.peter@epa.gov

## Attachments

Attachment Name
--------------------------------------------------------------------------
Emissions Data Integration SOW

<div align="center">

**WORK ASSIGNMENT**
**STATEMENT OF WORK**

</div>

**Title:**                    Emissions Data Integration

**Contractor and Contract #:**          RTI, EP-W-08-019

**Work Assignment #:**          TBD

**Estimated Level of Effort:**          1,030 Hours

**EPA Key Personnel:**

**Work Assignment Contracting Officer=s Representative (COR):**

Peter H Kokopeli
1200 Pennsylvania Avenue, NW
Washington, DC  20460
Mail Code 6204J
Phone: (202) 343-9085
Fax: (202) 343-2357
E-mail: kokopeli.peter@epa.gov

**Contracting Officer:**

Ryan Daniels
Administrative Contract Service Center
U.S. EPA
1200 Pennsylvania Ave. NW (3803R)
Washington, D.C.  20460
Phone (202) 564-6476
E-mail: daniels.ryan@epa.gov

## I. BACKGROUND AND PURPOSE

U.S. Environmental Protection Agency's (EPA) Clean Air Markets Division (CAMD) is responsible for collecting and reporting on stationary source emissions under the Acid Rain Program and the Clean Air Interstate Rule.  CAMD also manages the Clean Air Status and Trends Network (CASTNET) to monitor ambient air concentration and deposition of pollutants and to determine the effectiveness of nationwide emission reduction programs.  Information presented in papers, the division web site and progress reports frequently relies on analyses of emissions and air monitoring data and geographic information systems (GIS).

CAMD continues to develop new and maintain existing software applications.  EDAT (Emissions Data Analysis Tool) utilizes data residing in the CAMD Oracle database system to perform ad-hoc analyses of emissions and air quality data.  EDAT v5 launched in 2010 and is now supported through ClickOnce deployments.  CAMD also completed a project to re-engineer the process and data systems associated with emissions, monitoring plan, and certification data. The ECMPS (Emissions Collection and Monitoring Plan System) came online in 2009 allowing the conversion of the Target Tool for Audits (TTFA) from flat files to

Oracle. CAMD Stats and ChartARama are also deployed through ClickOnce.

This work assignment includes two new applications that build on prior work: Emission Trading Simulation (ETS) and CAMD Data Quality Assurance (CDQA). ETS currently exists as an Excel spreadsheet-based game but will be converted to a windows application for use both inside and outside EPA. The CDQA application will utilize data procedures (developed in Option Year 1) for data auditing and quality assurance purposes to display results for USEPA analysts.

Geospatial data is represented by points, lines, polygons, and complex geographic features. It encompasses both original and interpreted geospatial data derived through remote sensing including but not limited to images and raster data sets, aerial photographs, and other forms of geospatial data or data sets in both digitized and non-digitized forms. EPA standards require that locational information, such as latitude/longitude coordinates be collected and documented with environmental and related data, and not precluding, other critical location identification data, such as depth, height, elevation, altitude and/or street address, that may be needed to satisfy individual program or project needs. Geospatial data shall be developed and maintained in accordance with the key data life cycle phases: Data Planning; Data Collection and Acquisition; Data Processing and Documentation; Data Storage and Access, and; Data Maintenance and Retirement.

## II. CONTRACT LEVEL STATEMENT OF WORK REFERENCE

The tasks to be performed under this work assignment are consistent with the contract=s Statement of Work, "Task I. Technical Support Activities". In particular, the sections below apply:
i. "Geographical Information Systems (GIS) Support and Development";
ii. "Program Evaluation";
iii. "Data Systems, Information Technology, Web, and Computer Systems Support . . .
   to the extent required to make . . . outputs usable in the CAMD data system, the contractor shall perform technical support activities necessary for requirements analysis, specification and documentation preparation, system design, development, coding, testing, operations, version control, quality assurance, quality control, and web support."

## III. STATEMENT OF WORK TASKS

Task 1 - Prepare Work Plan

1. The Contractor shall prepare a Work Plan in accordance with the terms and conditions of contract clauses entitled "Work Assignments" and entitled "Preparation and Submission of Work Plans".

Task 2 - Emission Trading Simulation Game

1. The contractor shall provide software application development to migrate the current Excel version of ETS to a .NET windows application. Based on information about participants in USEPA's current ETS, we expect the audience to be varied, including novices and experts. The target audience includes: college students, environmental groups, brokers, power plant managers and staff, government regulators from various ministries (e.g., finance, environment, energy), and journalists.

2. The contractor shall propose target environment requirements (operating system, .NET framework, etc.) before starting development work. The objective is to make ETS practical and easy to use in a wide range of

settings with no installation required. Currently, ETS Excel version is provided to game participants on USB drives. Requirements include:

    2.1.    ETS must be capable of operating on most Windows computers (XP, Vista, Win7) in a non-networked environment. Ideally, the ETS will be a stand-alone application (e.g., portable) that will run on most Windows computers under limited (guest) privileges.

    2.2.    Data and configuration parameters can be modified without recompiling. Because USEPA may change the data for different participant groups or provide foreign language versions of the ETS, the application should utilize resource files or other similar structure to allow for changing labels, data, graphics, etc..

3.    The emission trading simulation (ETS) is a role-playing exercise that teaches participants about emission trading programs, specifically: how sources make compliance decisions (e.g., controls, fuel switching, buying/selling allowances); the relationship between regulator and source in an emission trading program; the benefits of an emission trading policy (economic, health, environmental). ETS is set in the fictional country of Ecoland. The Ecoland government has decided to address the air quality/climate change problem through the creation of cap and trade programs for $SO_2$ or $CO_2$. ETS participants take on the role of a power plant manager at one of approximately a dozen existing facilities.

4.    During ETS game play, the participants must meet three requirements:

    4.1.    Produce sufficient electricity to meet customer demand.

    4.2.    Report all emissions and allowance transfers to the Ecoland EPA.

    4.3.    Hold at least one allowance (or offset credit) for each ton of a pollutant emitted during the compliance period.

5.    To reduce emissions, the participants have several options:

    5.1.    Shift electricity generation between units (e.g., boilers, turbines),

    5.2.    Install control technologies (e.g., FGD, carbon capture)

    5.3.    Add new (cleaner) units,

    5.4.    Switch to cleaner/dirtier fuels (e.g., low-sulfur coal),

    5.5.    Install renewable electricity generation (e.g., wind turbines, solar thermal), or

    5.6.    Reduce consumers' demand for electricity (e.g., invest in energy efficiency).

6.    For the $CO_2$ program, participants can invest in off-site emission reduction projects to earn offset credits (e.g., external emission reductions) to compensate for on-site emissions. Offset credits cannot be used for more than 10% of a power plant's compliance obligation. In other words, if the plant's emissions were 100,000 tons, up to 10,000 offset credits could be used for compliance with allowances used for the remaining 90,000 or more tons. Offset credits are retired, up to the limit, before allowances are retired for compliance. Participants also have the option to buy and sell allowances/offset credits with other teams. At the end of each compliance period, the Ecoland government, collects emissions information, conducts a compliance assessment, and levies automatic penalties for each excess ton of emissions. Any excess allowances and offset credits are banked/carried over to the next compliance period. A game can last between 1 and n compliance periods.

7.    At the end of each compliance period, ETS displays a summary report detailing the plant's performance for the period and displaying any relevant news (e.g., due to rapid economic growth, electricity demand is expected to grow 2.3% during the next compliance period.) At the end of ETS gameplay, ETS displays a summary report detailing the plant's average performance and the participant's score.

8. There are three "difficulty" options: basic, intermediate, and advanced. Alternatively, the facilitator (or participant) can create custom difficulty levels by changing any of the settings in an ini file (or similar) by using the facilitator settings window.

## Task 3 -CAMD Data Quality Assurance (CDQA) Tool

1. The contractor shall develop an application to display metrics that illustrate the 'health' of CAMDDMW, ECMPS and EDAT schema data. The objective is to identify data issues before they are found by users. CAMDDMW is the source of CAMD data to the public so it is the primary target of this effort.

2. Examples of past data issues that CDQA is intended to catch include:
   2.1. a new source that reported GLOAD values several orders of magnitude larger than actual
   2.2. units in Louisiana shown as members of the OTC program
   2.3. stack ID's disappeared from EDAT Unit Universe

3. The application will utilize data loading procedures to aggregate data into a multi-dimensional cube that allows for efficient querying. The cube will capture historical trends in daily, monthly, quarterly, ozone season and annual data. Depending on performance, hourly data may also be evaluated. Generally, data will be compiled on a quarterly basis in line with the reporting schedule.
4. The application will use statistical measures to evaluate outliers, completeness and membership. Specific examples include:
   4.1. checking values (columns) in key tables for completeness or density
   4.2. performing range checks where values such as rates should fall within a band
   4.3. performing counts to determine if data loading procedures are accurate
   4.4. evaluating membership in programs or other sets
   4.5. correlations between metrics such as heat rate
   4.6. using standard deviations to find outliers

5. The application should highlight areas of concern in charts and provide access to tabular results as well.

## IV. DELIVERABLES

Task 1: work plan - in accordance with contract
Task 2: Source code, executables, documents - April 1, 2010
Task 3: Source code, executables, documents, data files - September 1, 2010

Distribution of Deliverables

Addressee                    Copies
EPA Contracting Officer       1 (cover only)
EPA Work Assignment Manager  1

# EPA

United States Environmental Protection Agency
Washington, DC 20460

## Work Assignment

**Work Assignment Number**
2-2

[X] Original  [ ] Amendment    Number:

| Contract Number | Contract Period | Title of Work Assignment |
|---|---|---|
| EP-W-08-019 | Base          Option Period Number II | The 2010 National Acide Precipitation Assessment Program (NAPAP) Report to Congress |

**Contractor**
RESEARCH TRIANGLE INSTITUTE

Specify Section and Paragraph of Contract SOW

**Purpose:** [X] Work Assignment Initiation    [] Work Assignment Close-Dut

[] Work Assignment Amendment   [] Incremental Funding

[] Work Plan Approval

**Periods of Performance**

From:03/11/10        To:03/10/11

**Comments:**
The contractor shall prepare and deliver a work plan in accordance with the attached Statement of Work.

## Accounting and Appropriations Data

[] Superfund                                                          [X] Non-Superfund

| Line | DC (Max 6) | Budget/FYs (Max 4) | Appropriation Code (Max 6) | Budget Org/Code (Max 7) | Program Element (Max 9) | Object Class | Amount (Dollars) | (Cents) | Site/Project (Max 9) | Cost Org/Code (Max 7) |
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## Authorized Work Assignment Ceiling

| | Cost/Fee | LOE |
|---|---|---|
| Contract Period: Previously Approved | | |
| This Action | | |
| Total | $0.00 | 520 |

## Work Plan / Cost Estimate Approvals

| | Cost/Fee: | LOE: |
|---|---|---|
| Contractor WP Dated : | | |
| Cumulative Approved: | Cost/Fee:$0.00 | LOE:520 |

| Work Assignment Manager Name | Branch/Mail Code |
|---|---|
| COLLEEN M. MASON | Phone Number |
| | Fax Number |
| (Signature)        (Date) | |

| Project Officer Name | Branch/Mail Code |
|---|---|
| RYAN T. DANIELS | Phone Number |
| | Fax Number |
| (Signature)        (Date) | |

| Other Agency Official Name | Branch/Mail Code 3803R |
|---|---|
| DEBRA A. MILLER | Phone Number 202-564-1041 |
| | Fax Number |
| (Signature)        (Date) | |

| Contracting Official Name | Branch/Mail Code 3803R |
|---|---|
| DEBRA A. MILLER | Phone Number 202-564-1041 |
| | Fax Number |
| (Signature)        (Date) | |

| Contractor Acknowledgement of Receipt and Approval of Workplan *(Signature and Title)* | Date |
|---|---|
| | |

## Summary Information

Title:                      The 2010 National Acide Precipitation Assessment
                            Program (NAPAP) Report to Congress
Period of Performance:  From: 03/11/10
                        To:   03/10/11
Award Date:
Total Funding:

## Procurement Management Roles

WORK ASSIGNMENT MANAGER:

U.S. E.P.A.
Attn: COLLEEN M. MASON
1200 PENNSYLVANIA AVE, NW
WASHINGTON, DC    20460

Mail Code:
Phone Number:
Fax Number:
E-Mail Address: mason.colleen@epa.gov

## Attachments

Attachment Name
------------------------------------------------------------------------
2010 National Acid Precipitation Assessment Program (NAPAP) Report to
Congress SOW

**Title:**                              2010 NAPAP Report to Congress

**Contract Number:**                    EP-W-08-019

**Work Assignment Number:**             TBD

## I.  BACKGROUND

The National Acid Precipitation Assessment Program (NAPAP) is a cooperative federal program first authorized in 1980 to coordinate acid rain research and report the findings to Congress. The NAPAP member agencies are the U.S. Environmental Protection Agency, the U.S. Department of Energy, the U.S. Department of Agriculture, the U.S. Department of Interior, the National Aeronautics and Space Administration, and the National Oceanic and Atmospheric Administration.

The research, monitoring, and assessment efforts by NAPAP and others in the 1980s culminated in Title IV of the 1990 Clean Air Act Amendments, also known as the Acid Rain Program. Under Title IX of the CAAA, Congress reauthorized NAPAP to conduct acid rain research and monitoring, as it had done during the previous decade.  Additionally Title IX required NAPAP to report to Congress on the costs, benefits, and effectiveness of the Acid Rain Program and characterize what deposition reductions would be necessary to prevent adverse ecological effects in acid sensitive ecosystems. The 1992 NAPAP report to congress was the first assessment of Title IV since program implementation in 1990.  Subsequent reports were released in 1996, 1998, and 2005.

In 1997 NAPAP began to operate under the auspices of the Committee on Environment and Natural Resources (CENR) of the National Science and Technology Council. NAPAP's goal continued to be providing credible technical findings on acid deposition and its effects to inform the public decision-making process. To ensure that this goal is met, NAPAP coordinates its activities through the Air Quality Research Subcommittee of CENR.

In 2007, a decision was made by the Air Quality Research Subcommittee of CENR and approved by the Director of CENR to redefine the scope of NAPAP in advance of the next report. Parts of previous NAPAP reports essentially duplicate what is already covered in annual progress reports issued by the Acid Rain Program Office of the U.S. Environmental Protection Agency (EPA). These EPA progress reports include annual data on emissions, air quality and deposition, market indicators (e.g. allowance prices), and health benefits, as well as information on the status of acid-sensitive lakes and streams as a result of implementation of Title IV. Future plans call for EPA to continue to issue these annual reports as a means of reporting progress of clean air market rules. In light of these ongoing EPA reports, a decision was made that future NAPAP reports should focus on providing an integrated assessment of the effects of acid precipitation on sensitive ecosystems.

## II. PURPOSE

The preparation of NAPAP assessments requires the interaction of many disciplines, institutions, and individuals. Since the Clean Air Markets Division (CAMD) annually reports on the progress achieved under the Acid Rain Program and related efforts to reduce air pollution and acid deposition, they are best suited to serve as project manager/Work Assignment Manager for the 2010 NAPAP report production.

The purpose of this Work Assignment is to provide editorial, quality assurance, and production support for the 2010 NAPAP Report to Congress. The primary audience for the NAPAP report is Congress, but the report also serves a broader audience various policy communities (e.g. federal government agencies part of the NAPAP

consortium, EPA offices; other federal agencies; state, local, and tribal agencies; members of Congress and their staff) and stakeholder groups.

## III.    STATEMENT OF WORK TASKS

### TASK 1:  Prepare Work Plan

The Contractor shall prepare a Work Plan in accordance with the terms and conditions of contract clauses entitled Work Assignments and entitled Preparation and Submission of Work Plans.

### TASK 2: Editorial and Production Support for the 2010 NAPAP Report to Congress

The contractor will continue to support the development of the quadrennial NAPAP Report to Congress for delivery as of November 5, 2010.  This will include synthesizing contributions from participating agencies, producing graphics, drafting text, and providing graphics and layout support in a way that is visually appealing. The contractor will also provide quality assurance support for all report sections.

The contractor shall continue to work from the outline that was produced in coordination with the WAM under the previous work assignment #1-07. The contractor will prepare, including assembly, composition, and final layout, the NAPAP report.  The contractor may use on-line collaboration and publication products and host and maintain collaborative secure on-line report production applications.   Production of a print version of the report, a 508-compliant website version, and related products is required.

### TASK 3:  Communications Development Support

The contractor will assist EPA CAMD program staff in the development, assembly, composition, and web-ready production of supporting documents and data sets to the NAPAP report as needed, direction to be determined by the WAM.  The contractor will support the development of communications and other supplemental materials for the reports such as 508 compliant PDFs for website posting, fact sheets, brochures, and/or technical addendums as warranted.

## IV. DELIVERABLES

| Deliverable | Description | Tentative Due Date |
| --- | --- | --- |
| Deliverable 1 | Draft NAPAP report prepared for AQRS review | June 11, 2010 |
| Deliverable 2 | Draft NAPAP report prepared for CENR/OMB review | August 27, 2010 |
| Deliverable 3 | FINAL NAPAP report completed for congress | November 5, 2010 |
| Deliverable 4 | FINAL communications materials completed | November 19, 2010 |